

Chilean Skies

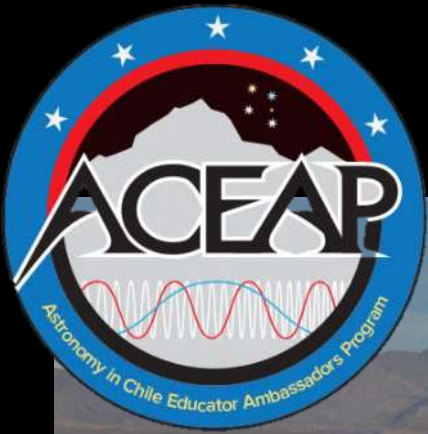
Amateur and Professional Astronomy in the Andes

Night Sky Network October 2015

Dr. Brian Koberlein

Peter Detterline

Vivian White



Astronomy Ambassadors in Chile

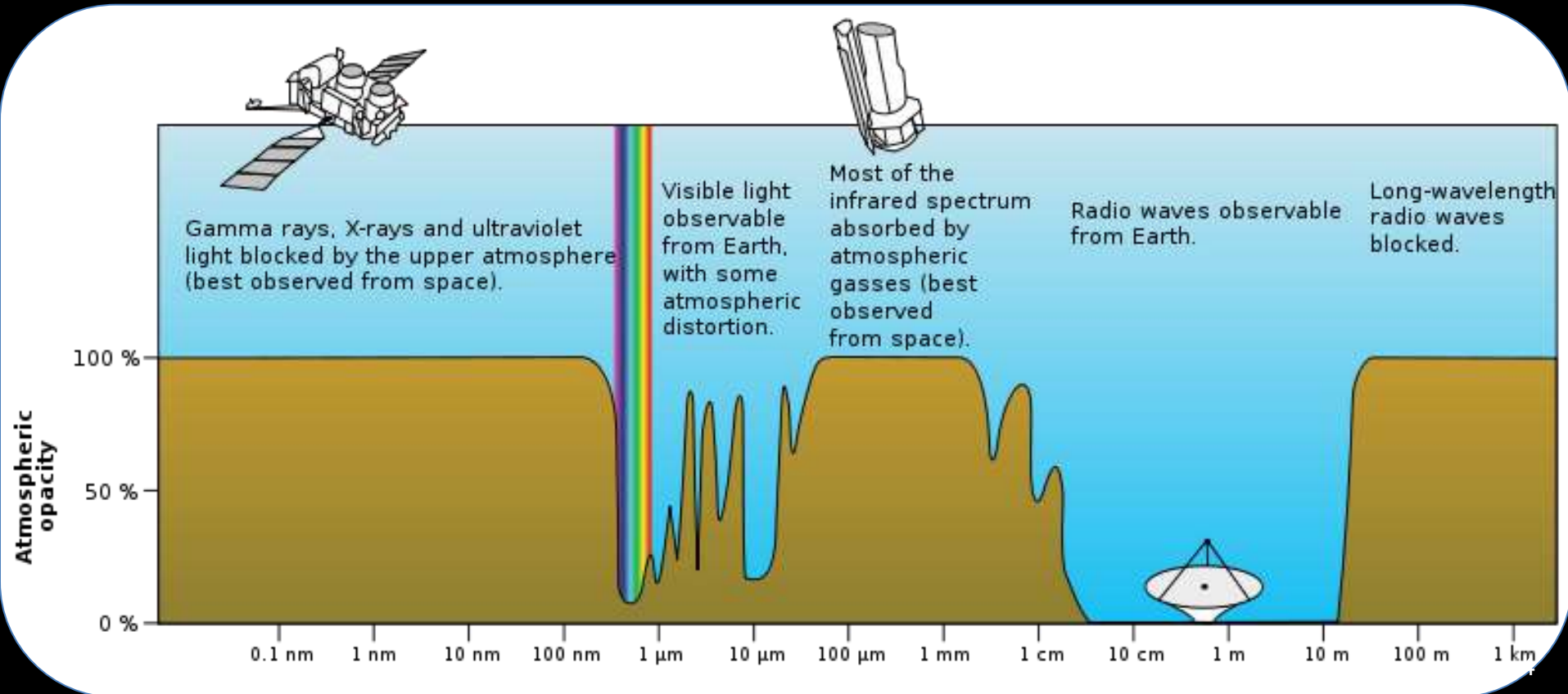


Dr. Brian Koberlein

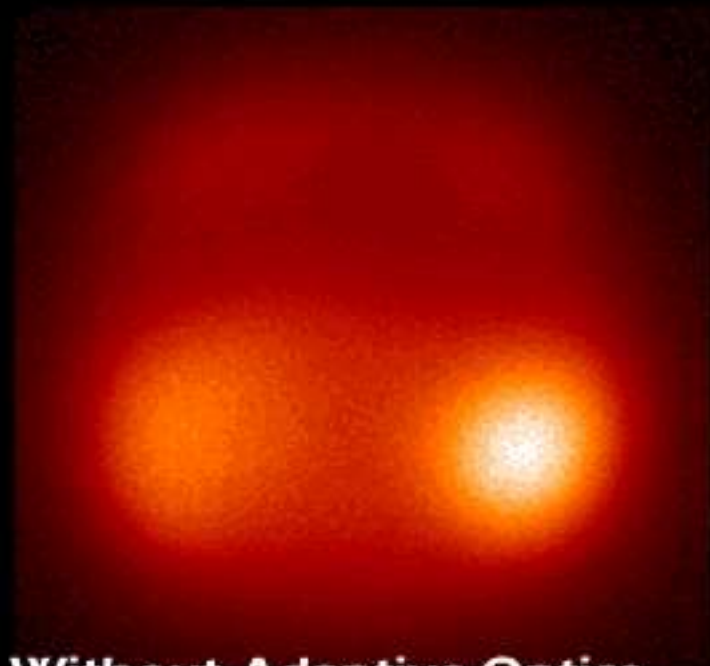
Brian is a Senior Lecturer of Physics and Astronomy at the Rochester Institute of Technology and an RIT media expert in astronomy, astrophysics and physics. He has authored several research articles, as well as an undergraduate textbook on computational astrophysics. In addition to his academic work, Dr. Koberlein is a tireless promoter of scientific understanding. His articles on physics and astronomy have appeared on numerous science websites including EarthSky, Nautilus, Universe Today and From Quarks to Quasars. He makes daily posts on physics and astronomy on his blog Once Universe at a Time (briankoberlein.com), where he also hosts a weekly podcast on a range of science topics. Dr. Koberlein is also a founding member of Prove Your World (proveyourworld.org), a 501(c)(3) not-for-profit using online media to promote science literacy and scientific habits of mind in children ages 8 - 13.



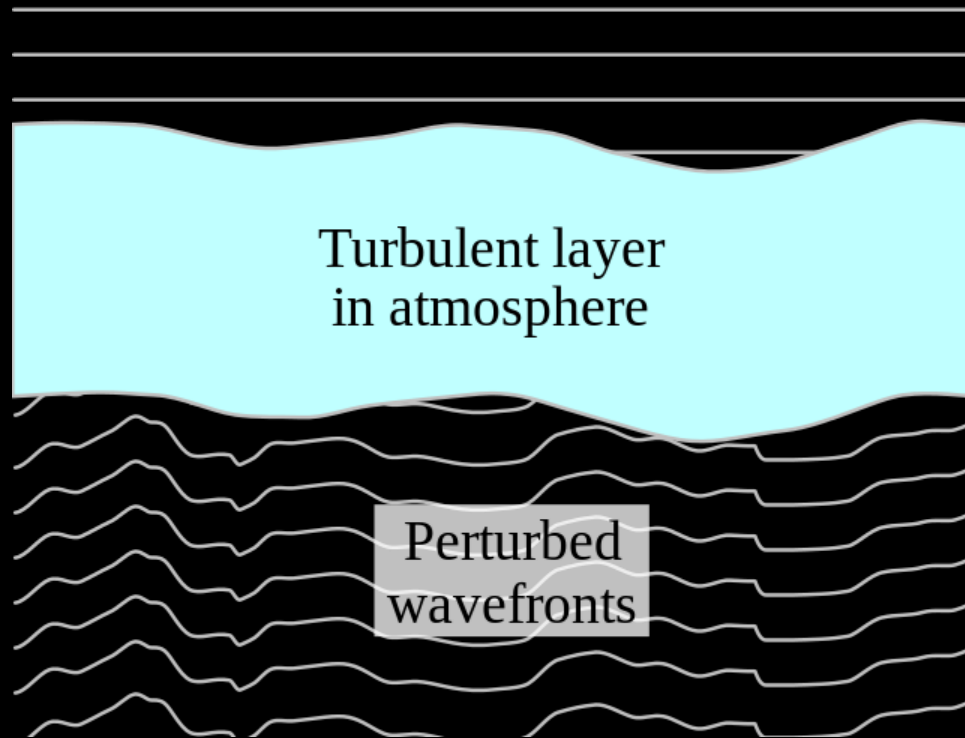
Astronomy From The Ground

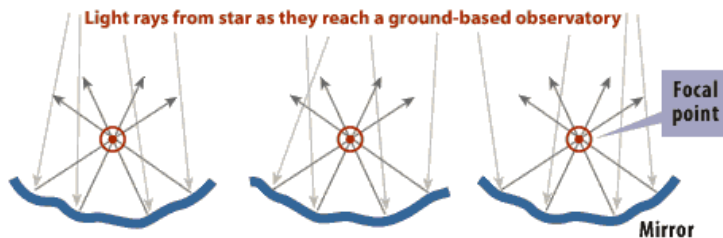
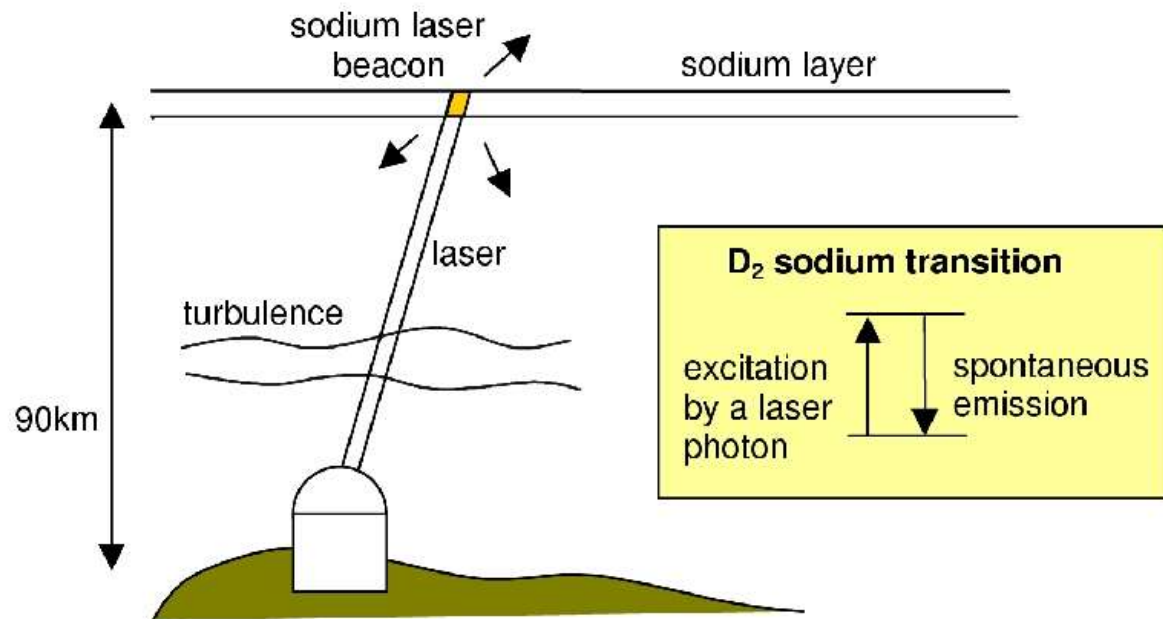




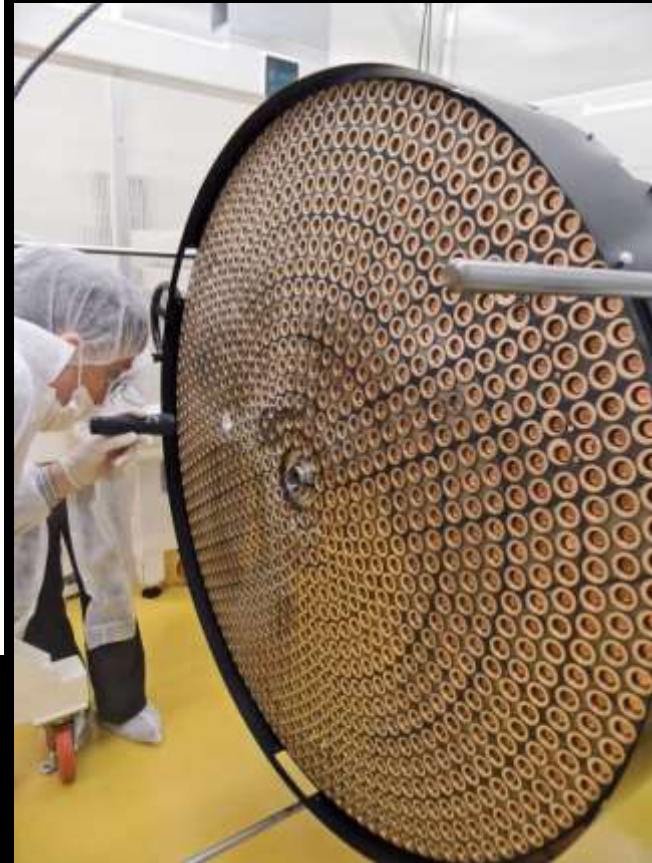


Without Adaptive Optics





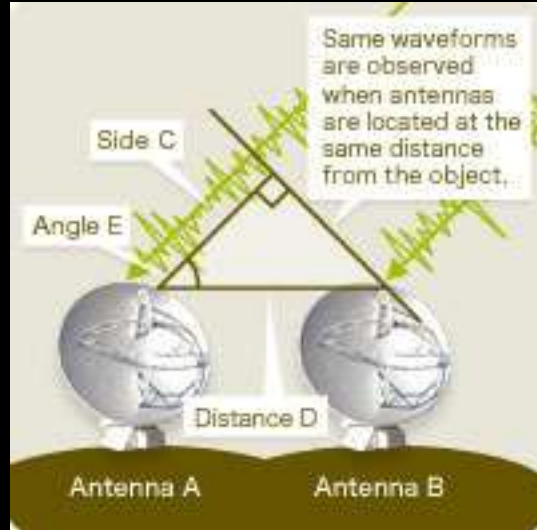
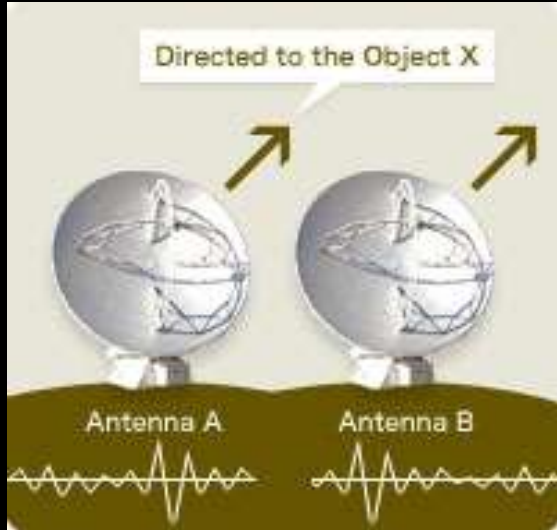
Three snapshots of the shape-changing mirror
 The single focal point stays in one place. (The mirror's shapes have been greatly exaggerated.)



Radio Telescopes



Interferometry: How it works



Wave is weakened when superposing a crest and trough of waves.



Wave is strengthened when superposing crests of waves.



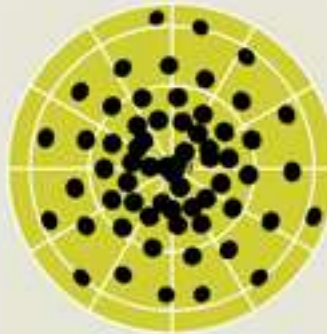
Aperture Synthesis



When antennas are located around the North Pole



Though antennas are sparsely distributed...



From the viewpoint of the target object, the spaces are filled by the antennas moving along the rotation of the earth. The area covered by the antennas can be regarded as a single virtual giant telescope.

* The actual ALMA antenna location differs from the figure above. The figure is a conceptual illustration to explain the principle of the "aperture synthesis" technique (interferometric imaging method) in a very simple way.



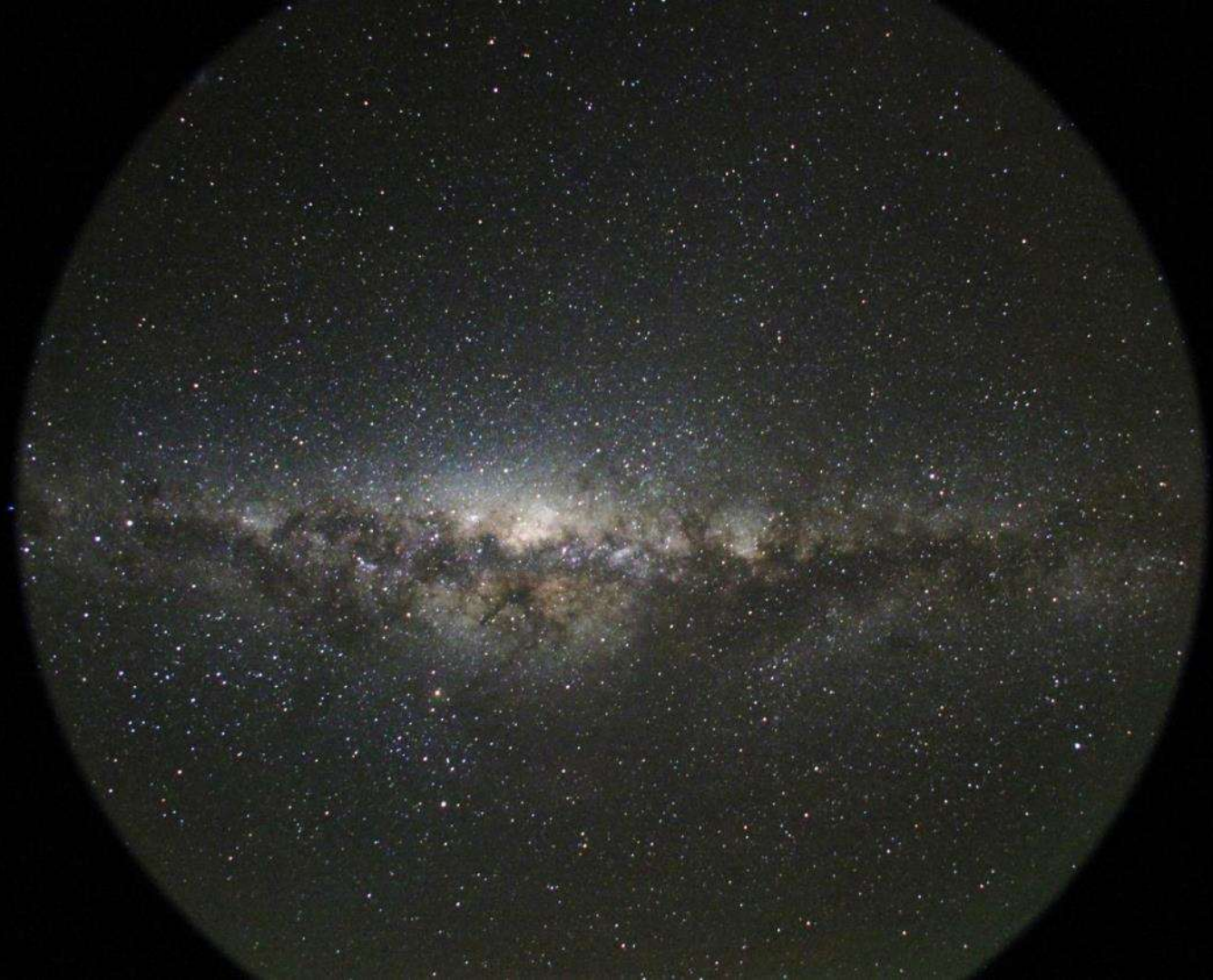
Peter Detterline

Peter is an avid astronomer whose interests cover a wide range of the astronomical spectrum. He is the Director of the Boyertown Planetarium, and a professor of astronomy at Montgomery County Community College and has worked with the Tzec Maun Foundation providing state-of-the-art Internet telescopes in New Mexico and Australia for student use. He has coauthored numerous papers on eclipsing binaries and contributes to the International Meteor Organization and the American Amateur Variable Star Observers. A founding member of the Mars Society, continues to work with Mission Support as Observatory Director for international astronomers who wish to use the facility. As an amateur astronomer he has traveled the globe and has completed many observing programs including the Astronomical League's "Master Observer".



























Vivian White

Vivian has been an astronomy educator with the Astronomical Society of the Pacific for a decade. Working mostly in informal science settings, her background has also included training classroom teachers through Project ASTRO. She currently designs activities for amateur astronomers engaged in public outreach through the NASA Night Sky Network. She is also researching meaningful astronomy experiences for preschool children in museums through an NSF grant. A suite of astronomy activities for 3- to 5-year-olds will be released in early 2016. Vivian enjoys sharing the splendors of the night sky on sidewalks, in observatories, through camps, and in local and national parks. Her love of the sky has taken her far and wide - the most recent adventures involved teaching astronomy to Buddhist monks in India and showing of the night sky last night on the White House lawn.



Cerro Mayu



Andean Astronomical Observatory



San Pedro de Atacama



